

CLAIMS:

1. A vehicular air conditioner comprising:

a refrigerant path;

a compressor unit equipped with a compressor, a four-way valve and a throttling resistance in the refrigerant path;

an indoor heat exchanger connected to one side of the compressor unit by the refrigerant path, said indoor heat exchanger effecting heat exchange between a refrigerant and intake air;

an outdoor heat exchanger connected to another side of the compressor unit by the refrigerant path, said outdoor heat exchanger effecting heat exchange between the refrigerant and outside air;

a reversible heat pump connected to the indoor heat exchanger in the refrigerant path, said heat pump executing a cooling operation and a heating operation by switching a direction of flow of the refrigerant in the refrigerant path, said heat pump including:

an air distribution fan positioned upstream of the indoor heat exchanger;

a coolant heat exchanger positioned downstream of the indoor heat exchanger;

a damper arranged adjacent to the coolant heat exchanger, said damper configured to switch an air flow path between either of a fully closed condition leading through the coolant heat exchanger and a fully opened condition leading through an air bypass space above the coolant heat exchanger and through the coolant heat exchanger, said damper not closing a

heater core when the damper fully opens the air bypass space and when the damper fully closes the air bypass space; and

a casing surrounding in sequence the air distribution fan, the indoor heat exchanger, the damper and the coolant heat exchanger, said casing serving as the air flow path for the intake air;

an engine cooling water system connected to the coolant heat exchanger of the heat pump but arranged outside of the casing; and

means for positioning said damper in the fully opened condition such that the coolant heat exchanger is made an air intake flow path in addition to an air flow path of the air bypass space during said cooling operation;

wherein the engine cooling water system includes a coolant bypass valve connected between a primary side flow path and a secondary side flow path for engine cooling water to bypass the coolant heat exchanger.

2. The vehicular air conditioner according to Claim 1, wherein the coolant heat exchanger is installed upright in the casing.

3. The vehicular air conditioner according to Claim 1, wherein the compressor has a variable capacity.

4. The vehicular air conditioner according to Claim 1, wherein the coolant bypass valve is a flow control valve.

5. The vehicular air conditioner according to Claim 1, wherein the engine cooling water system is connected to an engine and includes an auxiliary cooling water pump configured to operate when the engine is stopped.

6. The vehicular air conditioner according to Claim 1, wherein the damper is hinged at an upper side of the air bypass space.

7. A method for switching an air flow path during a cooling operation and a heating operation, comprising:

positioning a damper to switch the air flow path between either of a fully closed condition during the heating operation and a fully opened condition during the cooling operation, the fully closed condition defining the air flow path through a coolant heat exchanger, and the fully opened condition defining the air flow path through an air bypass space above the coolant heat exchanger and through the coolant heat exchanger and defining an air intake flow path through the coolant heat exchanger, said damper not closing a heater core when disposed in either the fully closed condition or the fully opened condition.